

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-19 (Canceled)

20 (amended). A process for ~~fabricating~~operating an electrically modulated programmable mask for optical lithography ~~comprising at least one optical modulator operable at one of the lithographic wavelengths of 248nm, 193nm or 157nm, said process~~ comprising:

Illuminating, with a light of one of the lithographic wavelengths of 248nm, 193nm or 157nm, providing a sapphire substrate having electrical control circuitry thereon~~[[]]~~, and applying~~further having~~ at least a thin layer of ~~one type of~~ semiconductor nano-particles with a bandgap disposed on ~~to~~ at least a portion of said substrate, said bandgap corresponding to the energy of said wavelength;

applying, using said electrical control circuitry, voltage or current to said at least one modulator individually, said voltage or current inducing induce said nano-particles in said thin layer to change transparency thereby controllably absorbing or transmitting at

~~said one of said lithographic wavelengths of 248 nm, 193 nm or 157 nm, said nano-particles thereby providing optical modulation at said wavelength; and~~

~~illuminating said programmable mask with a light of said wavelength to exposing a semiconductor wafer provide with a spatial light pattern responsive to said applied voltage or current.~~

21-39 (Canceled)

40. (amended). A process for ~~fabricating~~ operating an electrically modulated programmable mask for optical lithography comprising at least one optical modulator operable at the lithographic wavelength of 365nm, said process comprising:

illuminating, with light of a wavelength of 365nm, providing a sapphire substrate having electrical control circuitry thereon~~[[+]]~~, and further having at least a thin layer of ~~applying~~ at least one type of semiconductor nano-particles with a bandgap ~~to disposed on~~ at least a portion of said substrate, said bandgap corresponding to the energy of 365 nm light, said sapphire substrate and said layer of semiconductor nano-particles providing a modulator structure;

~~applying~~ ~~providing, with said electrical control circuitry,~~ voltage or current from said electrical control circuitry to said at least one modulator individually, said voltage or current inducing induce said nano-particles to change transparency thereby controllably absorbing or transmitting at 365 nm, said nano-particles thereby providing optical modulation at 365 nm; and

~~illuminating said programmable mask with 365nm light to provide~~ providing a spatial light pattern responsive to said controllably absorbing or transmitting at 365 nm from said modulator structure.